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PES

Payments for ecosystem services and poverty alleviation?

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Introduction

Many ecosystem governance approaches seek to change land-use or natural resource use patterns in order to reduce environmental degradation. Some use command-and-control regulations or 'sticks' that restrict access to and use of ecosystems, while others employ 'incentive-based mechanisms' (or 'carrots') to change behaviours, or a combination of the two (Börner et al., 2015; Nunan et al., this volume). Incentive-based instruments are 'assumed to allow social actors more freedom to coordinate among themselves in pursuit of societal goals' (Jordan et al., 2005: 497). The umbrella of incentive-based instruments includes mechanisms ranging from subsidies and taxes to conditional transfers, and can be market or non-market based. In this chapter, we focus on one of the most ubiquitous incentive-based governance instruments applied to ecosystem services in recent years: payments for ecosystem services (PES). Some argue that there are very specific conditions necessary for PES: a voluntary agreement or contract between a buyer and a provider, conditional upon provision of a well-defined ecosystem service (as per Wunder, 2005). However, in many cases PES has become a generic term for initiatives that transfer benefits or rewards to providers/stewards of ecosystem services, whether these be via cash payments, in-kind transfers or provision of services (e.g. training in new farming techniques, access to health care). Over time, frameworks for understanding ecosystem services have evolved (see Pascual and Howe, this volume) and, in parallel, definitions of and concepts behind PES have changed. In this chapter, we explore several key questions: (i) how have definitions of PES evolved and changed over time (and what are the theoretical and practical implications)? (ii) Can environment-centred and pro-poor focused outcomes of PES projects be better harmonised towards an environmental/poverty win-win scenario? (iii) What are the power, equity and justice challenges for PES? And (iv) What are the 'lessons learned' from the theoretical and on-the-ground realities of PES to date towards effective and sustained pro-poor PES mechanisms in the future?

How have definitions of PES evolved and changed over time?

The term PES has evolved over time and is used to describe a wide range of interventions that aim to change behaviours that lead to environmental degradation through incentive-based mechanisms. PES arose from the recognition that although all humans derive benefits from 'services', such as water, the onus often falls on people in rural areas and in developing countries to steward the world's remaining natural services (WCED, 1987). For example, for people downstream in cities to have clean water, people upstream in the mountains must not contaminate it; however, this may prevent them from fishing or irrigating their lands in the most efficient ways for them, so there are opportunity costs to stewardship. Theoretically therefore, the buyer compensates or rewards the steward for protecting the ecosystem or the specific ecosystem services.

The conundrum of how to appropriately compensate stewards (ecosystem services 'providers') resulted in a steep increase in attention to the valuation of ecosystem services, for the purpose of quantifying the opportunity costs of stewardship. Much of the early literature on PES focused on questions of ecosystem services valuation, willingness-to-pay and opportunity costs (Engel et al., 2008; Pagiola et al., 2005). Over time, the focus has shifted increasingly towards social issues beyond monetary value and markets (see Box 12.1).

To date, there is consensus neither about the definition of PES nor the conditions necessary for its implementation. The most widely cited definition, by Wunder (2005), states that PES requires five key criteria to be met:

- a voluntary transaction where a
- well-defined ecosystem service (or land-use likely to secure that service) is being
- 'bought' by (at least one) buyer from a
- (at least one) provider
- if, and only if, the provider secures ecosystem service provision (conditionality).

This perspective sees PES as a means to enact the Coase Theorem, that trade in externalities can lead to efficient outcomes if transaction costs are low. However, some assert that this definition is too narrow because very few successful on-the-ground examples of such 'true-PES' actually exist. According to Engel (2016), two basic types of PES can be distinguished: Coasean PES result from a direct negotiation between ecosystem service beneficiaries and ecosystem service providers. Alternatively, Pigouvian PES resemble an environmental subsidy, where payments are made by a government agency out of specified user fees (e.g. a water charge) or taken as a tax. However, many existing and most new PES schemes represent hybrids of the two.

Although PES is often labelled a 'market-based' mechanism and critics question its 'commodity fetishism' (Kosoy and Corbera, 2010) and its dependence on

neoliberal market-based incentives, in many cases PES is not market-based. Corbera et al. (2007) maintain that PES often contravenes the purist (i.e. Wunder, 2005) definition as there are no 'actual markets where ecosystem services are sold to service buyers' (p.366). The nature of ecosystem services, some of which are privately

BOX 12.1 EVOLUTION OF RESEARCH ON PES: CHANGING PREVALENCE OF KEYWORDS

Based on a keyword search in Web of Science carried out on 19 December 2017, we trace the changes in the proportion of articles in the PES literature that address different themes. Articles with PES in the title/abstract began to appear in 2004 and gained momentum in 2007, quickly numbering hundreds of papers per year. REDD+ (Reducing Emissions from Deforestation and Degradation) became a substantial contributor to the PES literature base from 2008. REDD+ articles appear to have peaked in 2014, yet still represent approximately half of the papers on PES and/or REDD+. Over time, papers that mention poverty and/or wellbeing have decreased in relative prevalence compared with those that look at power and/or institutions. Themes of equity and justice have grown in relative prevalence since 2008, and are now on a par with the number of papers mentioning poverty and/or wellbeing. The language of 'trade-offs' and 'win-wins' has been used in 10–15% of papers since 2012. The shift in keywords present in the PES literature reflects a change in the perceived importance of particular aspects of PES: PES is no longer put forth as a simple and efficient mechanism for protecting ecosystem services, and authors continue to debate the social context and conditions necessary for positive outcomes.

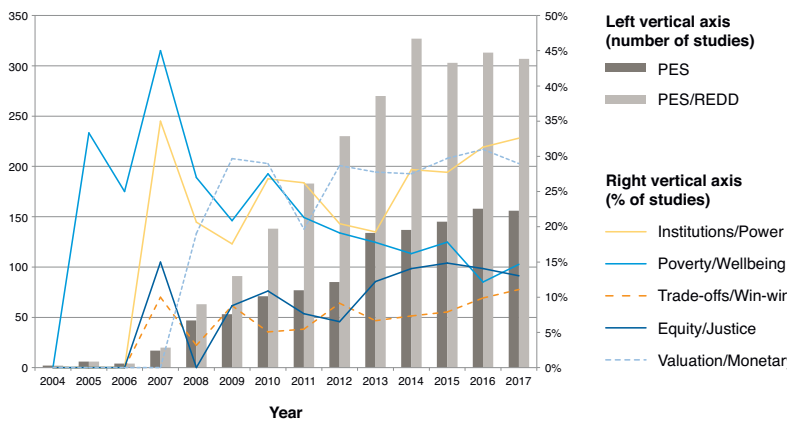

FIGURE 12.1 Evolution of PES and REDD+ publications from 2004–2017.

owned while others are public goods or communally owned, creates barriers to market conditions. In many cases, the commodity is ill-defined and governments act as intermediaries by mobilising resources from consumers to a government fund (Corbera et al., 2007).

Some assert that high transaction costs and the role of the state in defining or allocating property rights over the resources/ecosystems linked to ecosystem services means that Coase Theorem does not entirely apply to the reality of PES, which should therefore not be considered a market-based instrument (Tacconi, 2012). Additionally, case studies across the globe highlight both the methodological issues with a theoretical and practical market-based approach that involves the state, as well as cautioning against attribution of any observed changes in behaviour of the participants only to the PES (market) mechanism itself (Kumar and Muradian, 2009). Rather, these authors demonstrate that even those cases that seem stoically market-based, actually involve a myriad of specific socio-political and economic circumstances that are inherently dynamic over time and space, interacting with PES carrots and sticks in different ways that ultimately produce specific types of PES hybrids.

As a result of these observed complexities, the ecosystem services concept began to increasingly acknowledge the role of human agency, political processes and power. The PES literature has seen a shift away from adherence to 'true-PES' market-based models towards emphasis on institutions, power and equity and a widening of the concept to include what some consider to be 'PES-like' initiatives. Indeed Wunder (2015) himself expanded his definition to acknowledge many of the constraints to 'true-PES' in practice. The theoretical and practical shift in PES from a large-scale, market-based mechanism, to one which seeks to merge ecosystem service protection with poverty alleviation at a more local (project-based) level, has led to thinking about a move away from direct compensation for specific ecosystem services to one which approaches the problem with a more holistic institutional approach (Hejnowicz et al., 2015; Shelley, 2011).

The emphasis on 'payments' in PES is considered problematic by some, as many projects depend upon reciprocal agreements or 'rewards' that are not directly conditional upon measured outcomes (Whittaker et al., this volume; Kovacs et al., 2016). In some countries, the use of the term 'payments' sparks opposition to PES (e.g. Bolivia, Asquith and Vargas, 2007). A recent PES law in Peru is labelled the Law on Compensation Mechanisms for Ecosystem Services (Law 30215, June 2014) (Government of Peru, 2014) as a result of objections to the term 'payments'. Some have proposed a shift in language towards the use of the term 'Rewards for Ecosystem Service Stewardship' (Shelley, 2011) as a term that more accurately reflects the types of mechanisms carried out under the PES-umbrella.

PES is seen by some as an exchange of incentives or rewards or even reciprocal agreements (Asquith and Vargas, 2007). PES thus represents a transfer of resources (e.g. money, education, infrastructure) between social actors (e.g. individuals, governments, non-governmental organizations) that 'aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources' (Muradian et al., 2010: 1205). For Kosoy and

Corbera (2010), PES could alleviate poverty by creating an 'urban–rural compact' that transfers resources from 'consumers' to 'providers'. Muradian et al. (2010) propose that economic incentives are just one of many drivers that may influence behavioural patterns in relation to land use and the stewardship of ecosystem services, such that PES must be flexible enough to account for:

- the importance of economic incentives: the relative role of the payment/transfer in guiding behaviour
- direction of transfer: extent of intermediaries' involvement in the process
- degree of commodification: extent to which the ecosystem service can be assessed/acquired in measurable quantities.

The PES literature studies such a range of interventions that the picture of what PES is, what it should be and what its impacts are becomes blurred. For example, some studies of PES include reciprocal watershed agreements (RWA), and REDD+ (Reducing Emissions from Deforestation and Degradation) was described as 'the largest PES experiment in the world' (Corbera, 2012). Whether or not RWA and REDD+ are 'true-PES', they nevertheless provide insights that are relevant to moving PES forward and which we draw on below.

The impact of payment type and conditionality on PES outcomes

Early interest in PES arose from the belief that the dependence on conditional payments made the PES model institutionally simpler and more technical in nature than Integrated Conservation and Development Projects (ICDPs), which were widespread but considered relatively ineffective (Ferraro, 2001). As outlined by Porras and Asquith (this volume), PES is often considered one form of a broader set of mechanisms called conditional transfers. Conditionality of PES requires: contracts/negotiations that are linked to measurement of performance, monitoring of said performance and rewards/sanctions based on performance (Engel et al., 2008). Yet, as Fisher (2013) highlights, conditionality is rarely enacted in full and it obscures the importance of justice outcomes. Payment based on performance means there are prerequisites to participation in PES projects that may not be available to all actors: wealth is an influencing factor in project participation (which links to concerns about power and elite capture) (Fisher, 2013). Conditionality can also be problematic for more technical reasons – the outcomes sought by PES are often multi-dimensional and difficult to measure.

It is important to distinguish between PES initiatives that condition payments based on actions (e.g. conversion to conservation agriculture; planting of trees on farms) and those that are conditional on outcomes (e.g. reductions in deforestation rates, improvements in water quality). While some projects support actions that build assets like agroforestry (Porras et al., 2013; see also Box 12.2) and apiculture (Asquith et al., 2008), others focus on restricting activities, as Shelley (2011) discusses,

BOX 12.2 PES IN COSTA RICA: MANAGING TRADE-OFFS

Costa Rica's PES programme is one of the earliest examples of large-scale PES. Starting in 1997, the programme paid farmers for carbon storage, watershed protection and conserving biodiversity. Payments were for actions designed to bring ecosystem service benefits but not for actual outcomes in terms of ecosystem provision.

In ecological terms, the programme has been a success, covering almost 1 million ha of land since 1997 and increasing forest cover from a low of 21% in the 1980s to 50% by 2012. In socio-economic terms, the programme tried to encourage small- and medium-sized property owners by facilitating access for smaller producers. At first, areas with a low social development index were targeted, but after finding that benefits were captured by wealthier people in these areas, the system now weights applications from small (<50 ha) properties higher than others. Transaction costs for small producers were lowered by providing group contracts, decentralising the administrative offices where applications could be made and simplifying the contracts. The introduction of asset-building agroforestry and reforestation activities was more attractive to small producers than use-constraining activities like forest protection. However, smaller properties come with a trade-off as they may result in a more fragmented landscape, leading to lower ecosystem service outcomes. Another trade-off facing the programme is balancing the desire to introduce better indicators for ecosystem services against the increased cost of such monitoring systems.

Source: Porras et al. (2013)

while others use a mixed approach (e.g. Bolsa Floresta in Brazil, Viana, 2008). Indeed as Shelley (2011) points out, in some cases, it may be more straightforward to monitor actions and behaviours instead of outcomes, such that true conditionality can become prohibitively expensive. For example, monitoring the number of trees a household planted along a riparian zone is easier than monitoring water quality and attributing changes to a particular household's actions.

Some argue that projects should 'bundle' services so that several ecosystem services and multiple social aspects could be included in the same project (Hejnowicz et al., 2015). Others argue that it is better to 'stack' them, whereby separate payments/schemes are made for different ecosystem services from the same place (Reed et al., 2017). Given the interconnectedness of ecosystem services and processes, bundling, stacking and single-service projects need to address risks of double-counting and additionality in project design and implementation in order to maintain environmental impact and economic efficiency (Hejnowicz et al., 2015).

PES initiatives also differ in the ways they distribute payments/rewards: some are individual/household based (e.g. China's SLCP, Liu et al., 2010; Costa Rica's national PES, Porras et al., 2013), others focus on community/collective rewards (e.g. Mexico's hydrological PES project in ejidos, Kerr et al., 2014) and others implement a combination (e.g. Bolsa Floresta, Viana, 2008). In cases where landscape-level changes are sought, collectively distributed payments/rewards may be more realistic than household/individual payments (Kerr et al., 2014). Kaczan et al. (2017) found that group participation in design and the presence of group-coordinating mechanisms increased the impact of PES projects and helped reduce the free-rider effect and other problems inherent in collective rewards. In their Agent Based Model of the potential to use agglomeration payments (where participants receive bonus payments when a neighbour joins the project) for PES schemes focused on conservation agriculture, Bell et al. (2016) found that agglomeration payments increased adoption and efficiency by decreasing the cost of payments and monitoring.

Furthermore, not all land-use/resource-use decisions are linked to rewards, and changes in these behaviours cannot always be 'compensated' with payments/rewards. Keane et al. (2016) found that PES projects assume that behavioural changes can be adequately compensated, but this is often not the case, particularly for women and other marginalised groups. Payments are often based on opportunity costs that are calculated without attention to the social and cultural values of ecosystem services, and based on static/baseline household poverty levels which mask changes in opportunity costs over time (Van Hecken et al., 2015). In some cases, payments fail to cover the calculated opportunity costs (Kosoy et al., 2007), let alone the more nuanced interpretations of the 'cost' of changing behaviours.

Pro-poor vs environment-centred PES: poverty alleviation as co-benefit, a pre-requisite or a cause of trade-offs?

Even though some of the earliest examples of PES included poverty alleviation as specific objectives or assumed co-benefits, some authors insist that PES was conceptualised 'as a mechanism to improve the efficiency of natural resource management, and not as a mechanism for poverty reduction' (Pagiola et al., 2005: 239). According to Wunder (2013: 231), the shift towards inclusion of pro-poor objectives in PES arose because 'While user-financed PES programs tend to focus on their environmental goals, government-financed programs often *de facto* come to politically drift into win-win spheres of multiple side-objectives, such as poverty alleviation, regional development, or electoral motives.' Some believe that there are inevitable trade-offs between the two objectives of environmental effectiveness and poverty alleviation, and hesitate to endorse a win-win discourse (Engel, 2016; Pagiola et al., 2005; Vira et al., 2012). Nevertheless, Pagiola et al. (2005) conclude that there can be important synergies between PES and poverty reduction when programme design is well thought out and local conditions are favourable.

Despite a lack of consensus regarding the pro-poor origins of PES, concern over its wellbeing outcomes is at the core of many papers on PES. Sikor (2013) highlights concerns over the 'justices and injustices' linked to ecosystem services, and finds that the design of PES can have different justice outcomes (also see Dawson et al., this volume). According to Pascual et al. (2014) (among others), procedural fairness in PES can promote synergies between environmental and equity objectives so that PES can be socially progressive and can successfully integrate environmental and poverty alleviation goals. Those prioritising environmental outcomes tend to see participation as a transaction cost whereas a procedural justice lens would require participation (Fisher, 2013).

The debates around socio-environmental safeguards and co-benefits in REDD+ are particularly relevant to questions around pro-poor vs pro-environment outcomes. While REDD+ could bring income to the poor, the poor run the risk of suffering from elite capture, loss of access to land and lack of voice in decision-making (Peskett et al., 2008). There are concerns that national REDD+ programmes could 'recentralise' control of forest and land, thereby negatively affecting local peoples' rights and livelihoods (Phelps et al., 2010). Tenure security and effective participation of local communities are seen as means to ensure both pro-poor and pro-environment outcomes (Chhatre et al., 2012). If REDD+ ignores the capacity of local people to contribute to local development, it could repeat the environmental vs poverty trade-offs found in previous schemes (e.g. ICDPs, land-use policies) (Pokorny et al., 2013). Visseren-Hamakers et al. (2012) assert that these non-carbon values are critical to the legitimacy and effectiveness of REDD+ and should be seen as prerequisites and not 'co-benefits'.

However, in a systematic review of the literature, Samii et al. (2014: 7) found 'little reason for optimism for the potential of current PES approaches to achieve both environmental conservation and poverty reduction benefits jointly'. Pokorny et al. (2013) found that forest conservation initiatives in the Amazon that focused on environmental objectives tended to create barriers to forest use, while pro-poor initiatives showed ambivalent results for environmental outcomes. A randomised control trial of an avoided deforestation PES project in Uganda found environmental benefits (lower rates of tree cover loss in project communities compared with controls), but ambiguous results for poverty (household expenditures neither increased nor decreased) (Jayachandran et al., 2017). Yet some studies found benefits for both the environment and poverty alleviation. Liu et al. (2010) found improved income for farmers in China's SLCP which had some success in converting agricultural lands back to forest. In Cambodia, Clements et al. (2010) found increased income from a bird-nest protection programme, with simultaneous increases in bird populations.

Beyond the question of win-wins vs trade-offs, it is still unclear whether or not PES leads to pro-poor outcomes. In their review, Börner et al. (2017) found no consistent trend in poverty alleviation impacts. While aggregate-level evaluations may indicate positive/negative outcomes, assessments of the poverty alleviation components of PES initiatives must recognise that there are likely to be winners

and losers, and any indicators of wellbeing must be disaggregated to account for differentiated outcomes (Daw et al., 2011).

Power, equity and justice: who participates? Who wins?

PES is inherently political (Van Hecken et al., 2015). As Muradian et al. (2013) assert, PES is 'part of broader structures of power.' Different groups can influence the design and implementation of PES payment schemes, thereby influencing their effectiveness and distributional outcomes (Muradian et al., 2013). The 'providers' of ecosystem services comprise a range of actors, from rural households who – for example – maintain forest cover, to communities involved in watershed protection to developing countries whose reductions in deforestation are rewarded under REDD+. Participation of different groups in PES, and barriers to participation, are at the centre of many concerns about equity and justice in PES (see below and Dawson et al., this volume). Intermediaries, who facilitate interactions between 'buyers' and 'providers', play a fundamental role in PES project design and implementation. Participation of government actors in PES often comes in the form of an intermediary due to their role in assigning land rights allocation and in monitoring relationships between private sector 'buyers' and local citizen 'providers'. In some cases, government institutions act as the intermediary in negotiating the terms of contracts, while in others this role falls to civil society organisations. In all cases, effective and flexible institutions are important for PES implementation on the ground (Hejnowicz et al., 2015).

Given their role as facilitators and brokers, intermediaries are in a position of power in determining PES project design, objectives and who benefits. For example, in the 'Uganda Trees for Global Benefit' project, the project proponent (the intermediary) was a conservation organisation and chose indigenous tree species of lower market value than exotics thus improving environmental outcomes at the cost of local livelihood benefits (Schreckenberg et al., 2013). Vatn (2010) highlights that intermediaries are powerful in determining the conditions for participation in/benefit from PES, and Corbera et al. (2009) found that half of the payments linked to PES are going to intermediaries and verifiers.

Access to benefits from PES is often disproportionately accrued by households who are already better-off than the poorest households in a given community. Poudyal et al. (2016) found elite capture of resources in a REDD+ project in Madagascar, where local institutions were used to determine 'project-affected parties' who would/would not receive safeguards compensation as part of the establishment of a protected area linked to the REDD+ project. Similar challenges faced a project in Uganda, where poorer households were unable to participate in a tree-planting project due to lack of access to funds to cover upfront costs (Peskett et al., 2011).

For Ishihara et al. (2017) it is essential to analyse another layer of socio-ecological complexity: agency and power relations that arise from PES. Ecosystem service providers become 'institutional bricoleurs' who draw on social and cultural

arrangements and institutional contexts to build new institutions that are adapted to their local contexts (Ishihara et al., 2017). Institutional bricolage thus challenges the view of actors as powerless victims of institutional change. Van Hecken et al. (2015) point to the flaws in the discourse that PES institutions can be 'designed to fit', given the complex power structures and social norms within which PES must operate. Locatelli et al. (2014) highlight the potential for PES to destabilise local institutions.

REDD+ has elicited concern regarding its impact on equity and power dynamics at both local and international scales, leading to worries over the potential for dispossession of both the lands and livelihoods of indigenous peoples (Mahanty and McDermott, 2013). The McDermott et al. (2013) equity framework has provided a useful lens to assess equity in REDD+, PES and other similar initiatives. Schreckenberg et al. (2013) applied the framework to a study of a carbon project in Uganda, and found a clear bias towards participation by better-off farmers in the project. Applying the framework to REDD+ in Indonesia, Ituarte-Lima et al. (2014) highlight the structural obstacles to participation of marginalised groups. Projects that require land ownership as a prerequisite for participation will exclude landless households, and consequently the poorest and most marginalised. In addition to being excluded from some projects, the landless poor can be impacted negatively if PES programmes restrict their access to rights or resources (Tacconi, 2012).

While some point to REDD+ safeguards as an example of best practice to mitigate some of these power imbalances and resulting inequity of the distribution of benefits, safeguards will not be enough to ensure that projects bring livelihood benefits to the poorest and most marginalised groups. Conceptualised as mechanisms that make sure projects 'do-no-harm', they do not require positive benefits per se (Sikor, 2013). As highlighted above, safeguard processes can be susceptible to elite capture and exclusion of marginalised groups (Poudyal et al., 2016). Mechanisms like FPIC (Free, Prior and Informed Consent) can help ensure consultations of local people and build on lessons from other initiatives/sectors (e.g. mining, certification), but are often carried out without the adequate time-frames, methodological flexibility and participatory learning that is needed (Mahanty and McDermott, 2013).

PES schemes are commonly developed from the top-down by governments, conservation agencies and NGOs, or developed with only partial involvement of a narrow range of stakeholders (Reed et al., 2017). However, bottom-up collaborative PES projects are increasingly promoted to address concerns about social justice, elite and/or regulatory capture and, particularly, for poverty alleviation (Vatn, 2010). Thus, a place-based approach is becoming particularly significant for PES.

Lessons learned: counterfactuals and local context as the way forward?

Our synthesis of three reviews of case studies evaluating different aspects of PES schemes such as social, environmental, economic and institutional dynamics

(Ezzine-de-Blas et al., 2016; Hejnowicz et al., 2014; Samii et al., 2014) revealed that none could find more than 55 papers that fit their criteria for inclusion. Several sets of scholars tried to run statistical models on PES impact evaluation results, but almost all of them recognised that their own strategies were severely impaired by the small sample size (ibid.). The heterogeneity of results outlined in earlier sections further complicates efforts to generalise. There is simply not enough empirical or counterfactual evidence to be able to glean solid generalised conclusions with relation to best PES theory and practice in order to have any standard procedures. Understanding empirical patterns emerging from the growing body of case studies worldwide (and indeed increasing the number of such reports) could be the best way forward to help us gain new insights for policies and best practices.

Although generalised conclusions about PES design and implementation are not possible at this point in time, some lessons have been learned that are relevant to achieving pro-poor and pro-environment PES:

Context matters

Many authors point to the importance of local context in design and implementation of PES schemes, and the effect of context (in all the forms discussed in this chapter) on PES outcomes (Poudyal, 2017; Rodríguez-Robayo and Merino-Perez, 2017). As Poudyal (2017) found in his review of ESPA's research on PES, locally adapted approaches are, to date, the most successful. Ezzine-de-Blas et al. (2016) highlight the importance of customised design of PES, and Börner et al. (2017) point to the importance of accounting for locally specific contextual dimensions (e.g. politics, institutions, pre-existing policies) in project design.

In order to understand how to create PES initiatives that provide win-wins, we need to recognise the trade-off between blueprints that can be implemented at a wider scale and the creation of efficient, effective and equitable PES models that are adapted to local contexts (Rodríguez-Robayo and Merino-Perez, 2017), and work with existing institutions in order to design PES but also recognise how existing power structures and social norms embedded within those institutions can influence pro-poor/equity outcomes (Van Hecken et al., 2015). The challenge lies in identifying the 'appropriate (hybrid, context-dependent and adaptive) institutional arrangements that can ensure optimal resource use, beneficial collective action and hence more equitable and ecologically sustainable governance' (Van Hecken et al., 2015: 119).

Language matters

The language of PES is important (Shelley, 2011). PES has been used as an umbrella term for many different types of interventions and project designs such that reviews of PES outcomes are clouded by their comparison of 'apples and oranges', which makes generalisations difficult and brings risks for social and environmental outcomes, particularly for the poorest and most marginalised. There has been a shift

away from seeing PES as market-based payments towards more holistic rewards for stewardship. While there is variability, most PES/PES-like initiatives are voluntary and based on conditional rewards for changes in behaviour. The degree of conditionality and the type of reward/payment has impacts on both environmental and poverty/equity outcomes (Shelley, 2011). 'True-PES' may be an elusive beast without many real-world examples of its implementation but there are risks, particularly to the poorest and most marginalised, to lumping a wide range of interventions and projects designs under the 'PES-like' umbrella.

Equitable outcomes matter

PES has evolved to reward people who make livelihood-altering changes to how they manage the land for environmental stewardship. These stewards represent a wide range of actors with their own relationships with nature, and need to be rewarded (or incentivised) in ways that are appropriate to their context (social, cultural, economic, political) and provide just outcomes. Pro-poor and justice outcomes should not be a 'co-benefit' but instead a prerequisite. In order to achieve pro-poor/justice outcomes, interventions must be designed with pro-poor and equity-based objectives as central tenets from the outset. In particular, projects must address both direct and indirect impacts on the poorest and most marginalised households.

Power matters

Understanding existing power structures is essential to making pro-poor and equitable PES a reality. PES can increase long-term sustainability, local legitimacy and agency by emphasising local priorities and bottom-up project design which is adapted to local contexts. It also must recognise and explicitly address power dynamics and the roles of both informal and formal institutions and elite capture in influencing behaviours that affect ecosystem services, but also in determining access to ecosystem services and benefits from PES.

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